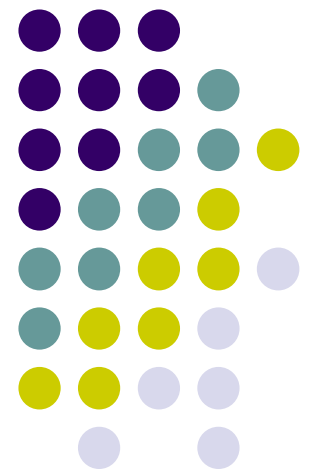# DWFE Precipitation Verification

QC issues
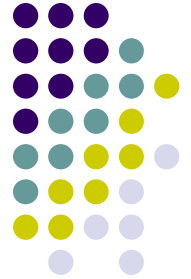
Some early results

Verification web pages

RTVS Verification: *www-ad.fsl.noaa.gov/fvb/rtvs/wrf/DWFE/*

1

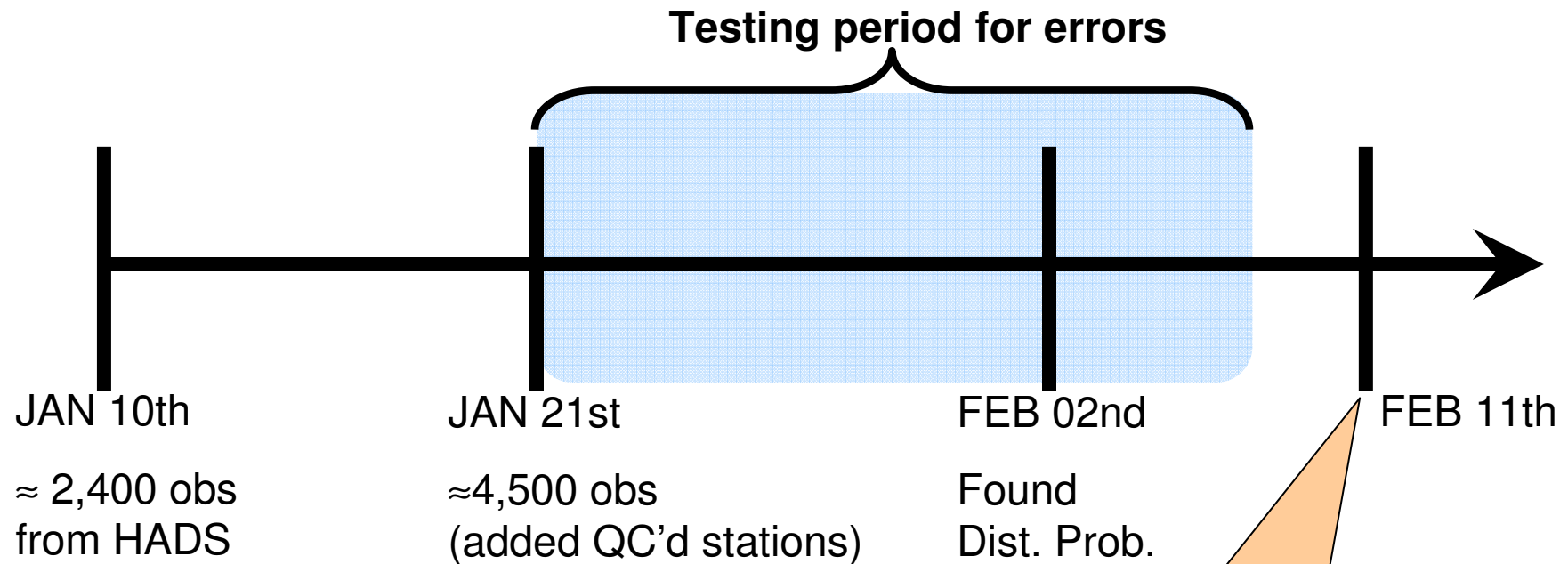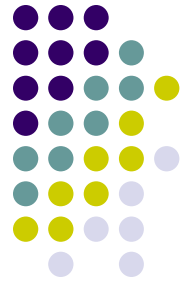Presented by Andrew F. Loughe, NOAA / OAR / FSL / AD / FVB / RTVS

QC Issues from 21JAN – 02FEB

❖ Issues regarding availability of data for creating lists of QC'd precip stations.

❖ Distance calculation error affected the lat/lon value associated with the stations.

Observations for RTVS DWFE precip DB
Timeline of development

Testing period for errors

JAN 10th

≈ 2,400 obs
from HADS

JAN 21st

≈4,500 obs
(added QC'd stations)

FEB 02nd

Found
Dist. Prob.

FEB 11th

Determined that impact of
Dist. Prob. was minimal.

Created new RTVS database

Background Information

Expanded observations for verification

WRF/NMM: Precipitation Verification

Domain=natl   Issuance Time=0000Z   Forecast Length=3hrs   Threshold=0.01in.

Date	YY	YN	NY	NN	ETS	Bias
2005-01-15	1	26	40	4581	0.01	0.66
2005-01-16	2	7	52	4477	0.03	0.17
2005-01-17	29	149	60	4296	0.11	2.00
2005-01-18	12	52	22	4526	0.13	1.88
2005-01-19	14	29	73	4346	0.11	0.49
2005-01-20	49	58	61	4222	0.28	0.97
2005-01-21	26	84	50	4481	0.15	1.45
2005-01-22	22	97	21	4246	0.15	2.77
2005-01-23	112	193	82	3555	0.26	1.57
2005-01-24	2	13	11	4772	0.08	1.15
2005-01-25	2	11	29	4655	0.05	0.42
2005-01-26	4	23	24	4221	0.08	0.96
2005-01-27	58	84	186	3851	0.16	0.58
2005-01-28	28	55	151	3787	0.11	0.46
2005-01-29	79	86	396	2977	0.11	0.35
2005-01-30	177	195	293	3192	0.21	0.79
2005-01-31	17	51	160	2916	0.06	0.38
2005-02-01	21	47	58	3955	0.16	0.86
2005-02-02	76	28	162	3089	0.27	0.44
2005-02-03	17	15	337	3810	0.04	0.09
2005-02-04	4	8	85	3711	0.04	0.13
2005-02-05	30	27	56	4763	0.26	0.66
2005-02-06	21	29	39	4166	0.23	0.83
2005-02-07	124	132	193	3540	0.24	0.81
2005-02-08	136	88	327	3409	0.21	0.48
2005-02-09	51	63	193	3479	0.15	0.47
2005-02-10	106	23	318	3913	0.22	0.30
2005-02-11	48	151	86	4809	0.15	1.49
2005-02-12	27	44	68	4259	0.19	0.75
2005-02-13	119	117	309	2721	0.17	0.55

Totals

YY	YN	NY
1414	1985	3942

(2005-01-15 thru 2005-02-14)
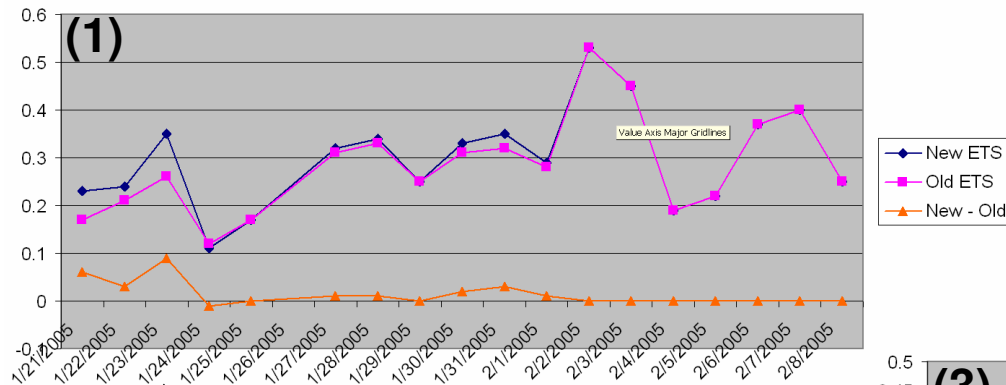
JAN 10th

≈4,500 obs from HADS

FEB 15th

Web tables confirm number of stations being used.

The new database is now <u>fully populated</u> with the expanded HADS QC'd data with corrected positions throughout!

4

What was the impact of the Distance Calculation Problem? _ETS_ (2nd decimal place)
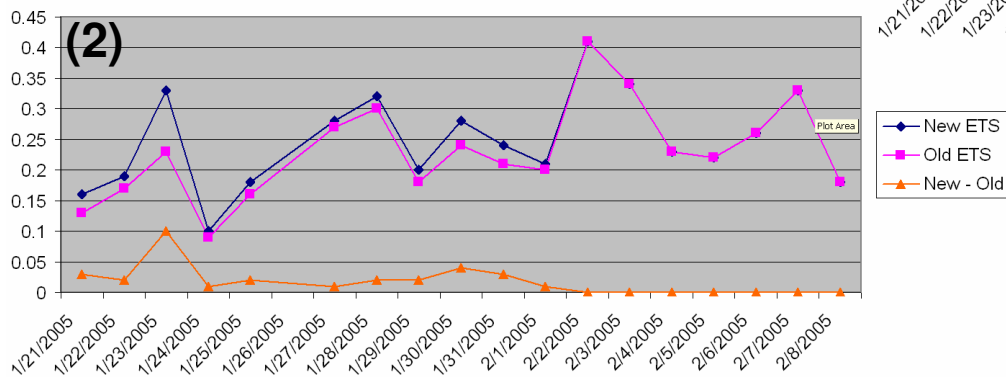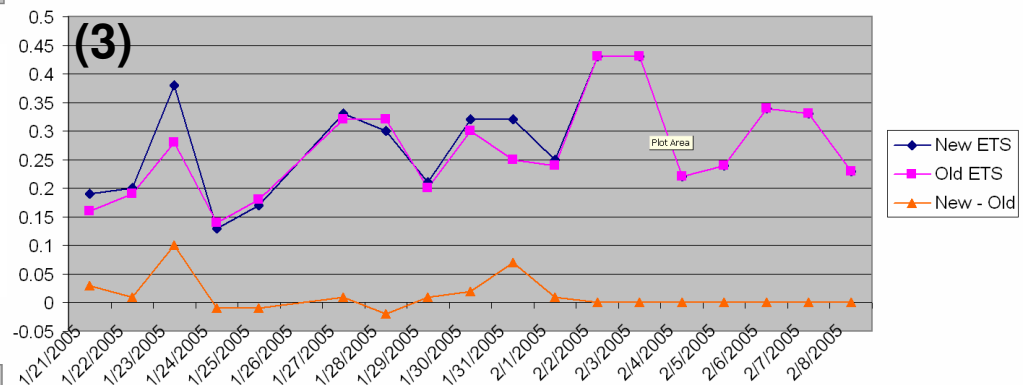

ETA ETS Comparison

(1)

Data availability issues

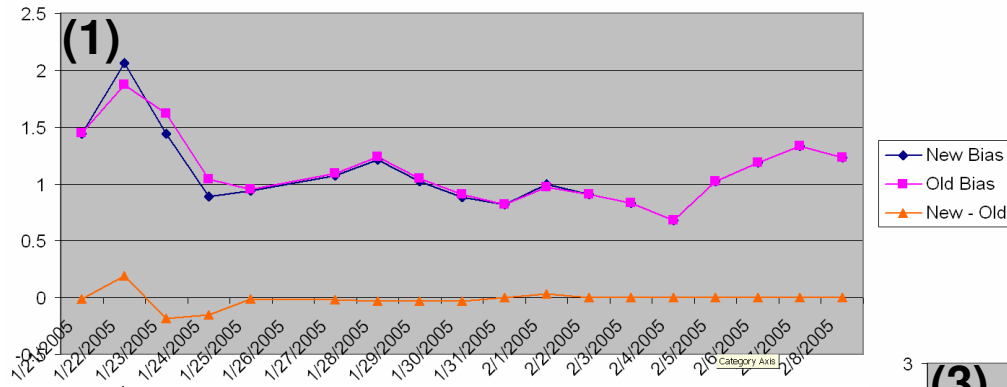NMM ETS Comparison

(2)

ARW ETS Comparison

(3)

Errors less than 0.1… mostly smaller than this.

5

What was the impact of the Distance Calculation Problem? *Bias* (2nd decimal place)
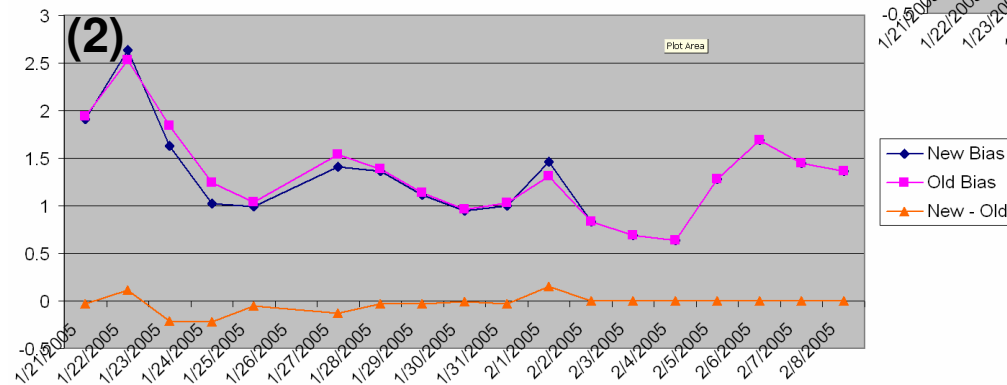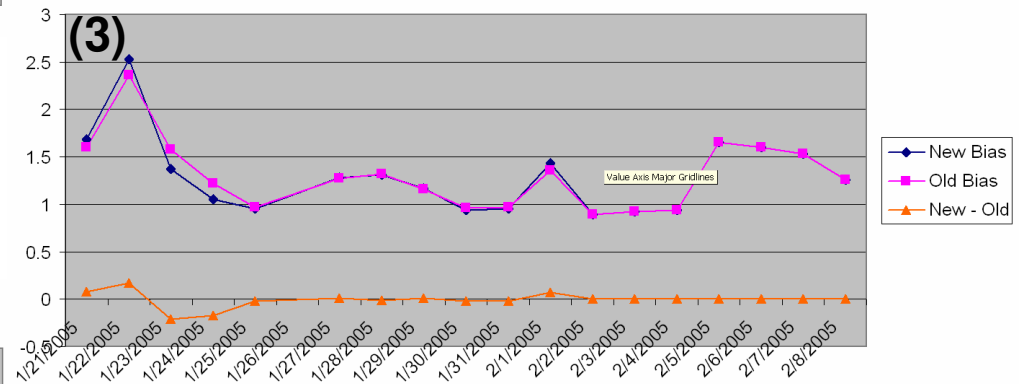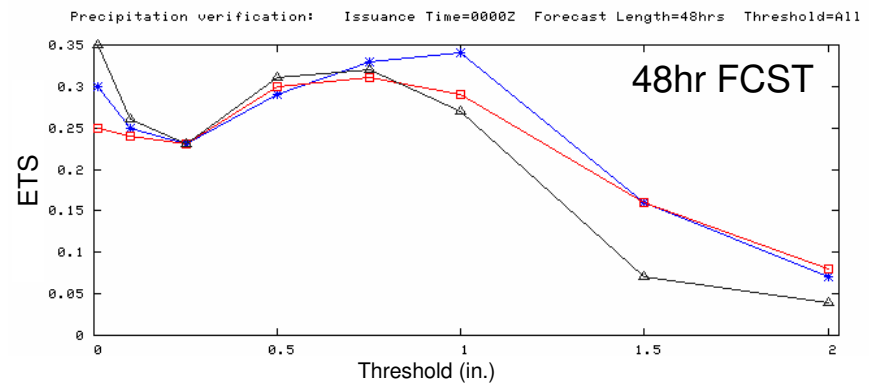
ETA Bias Comparison

(1)

Legend:
- New Bias
- Old Bias
- New - Old

Data availability issues

NMM Bias Comparison

(2)

Legend:
- New Bias
- Old Bias
- New - Old

ARW Bias Comparison

(3)

Legend:
- New Bias
- Old Bias
- New - Old

Errors less than 0.1… mostly smaller than this.

6

Some initial findings from the overall numbers. *ETS*   Eta NMM ARW

10 JAN – 13 FEB
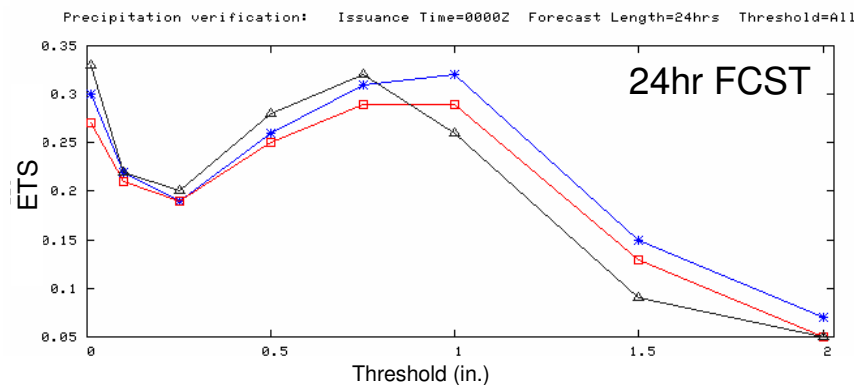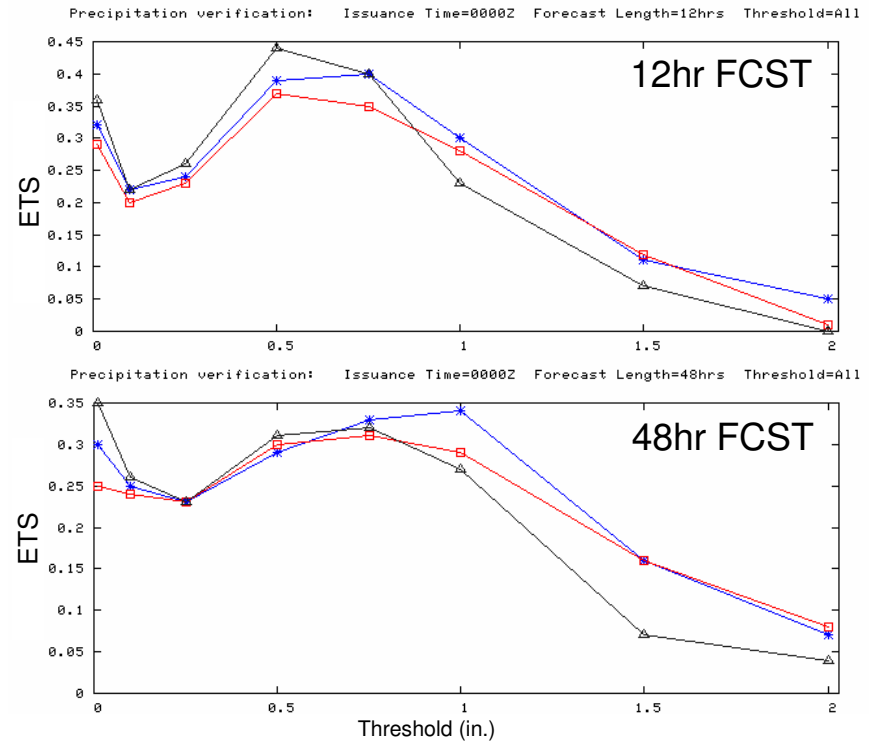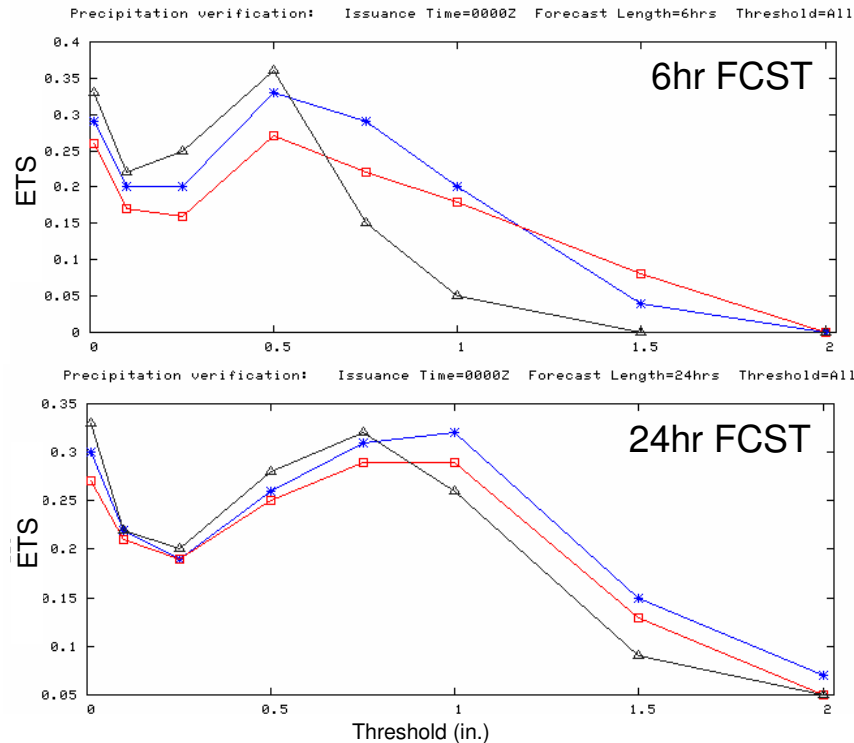
Y-axes not normalized. View results within each plot itself.

Eta model performs better at low thresholds for all forecast lengths.

Above the 0.5 inch threshold, the **ARW** and **NMM** skill score generally higher.

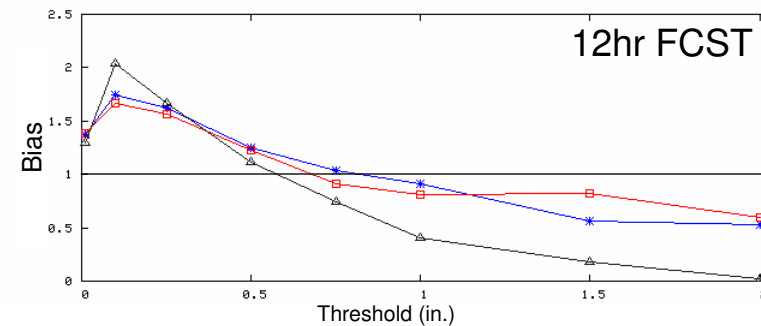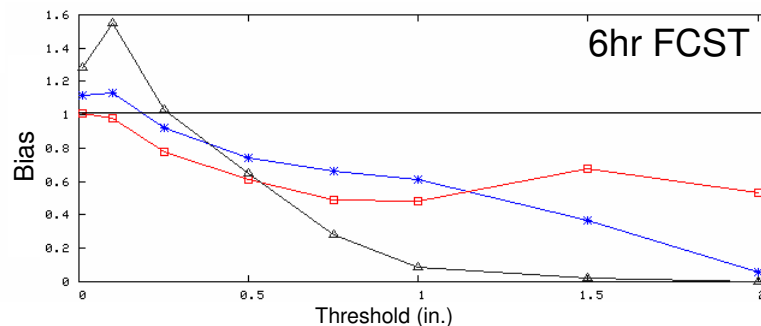# Some initial findings from the gross numbers.   *BIAS*   Eta NMM ARW

Frequency Bias is often large for small thresholds. Drops off quickly for **Eta** model.

WRF models willing to forecast precipitation at the larger thresholds.

Biases equally good for the **NMM** and **ARW** models (near 1.0).
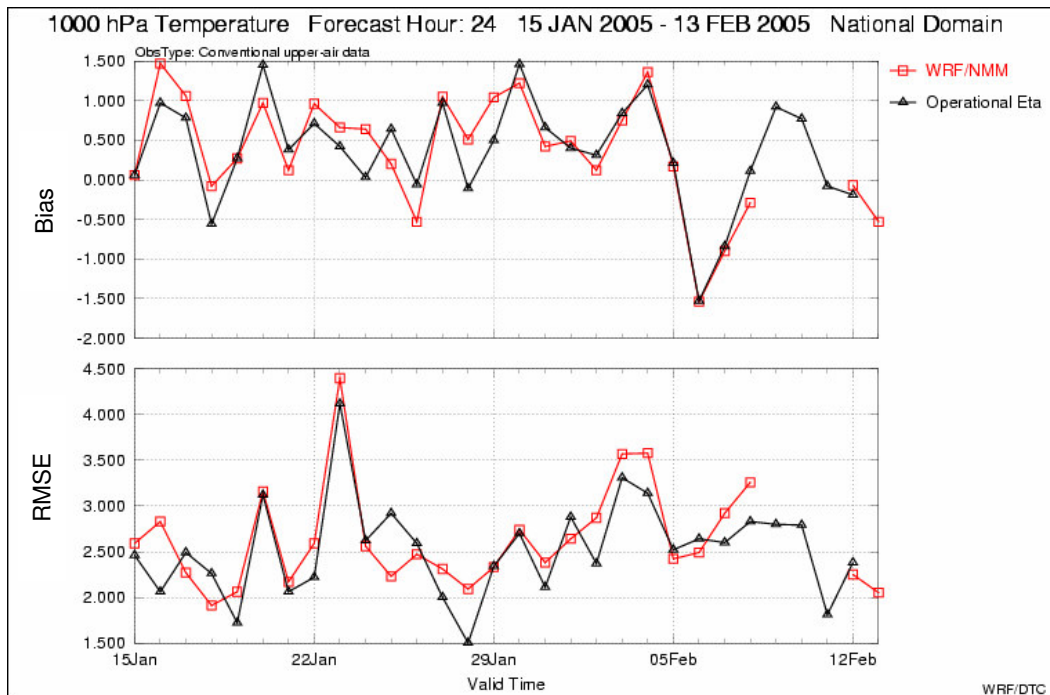
10 JAN – 13 FEB
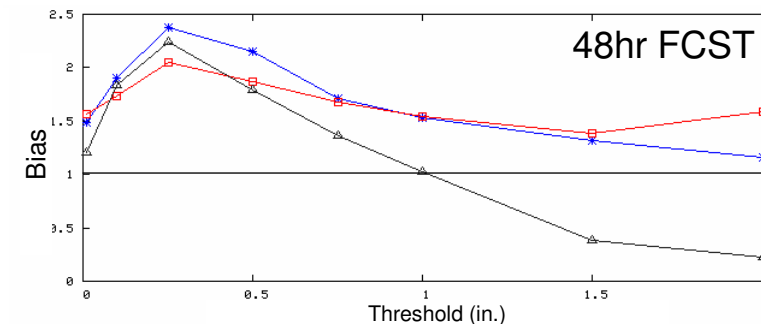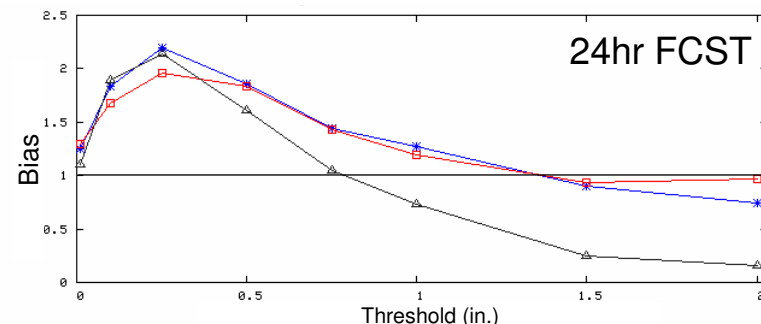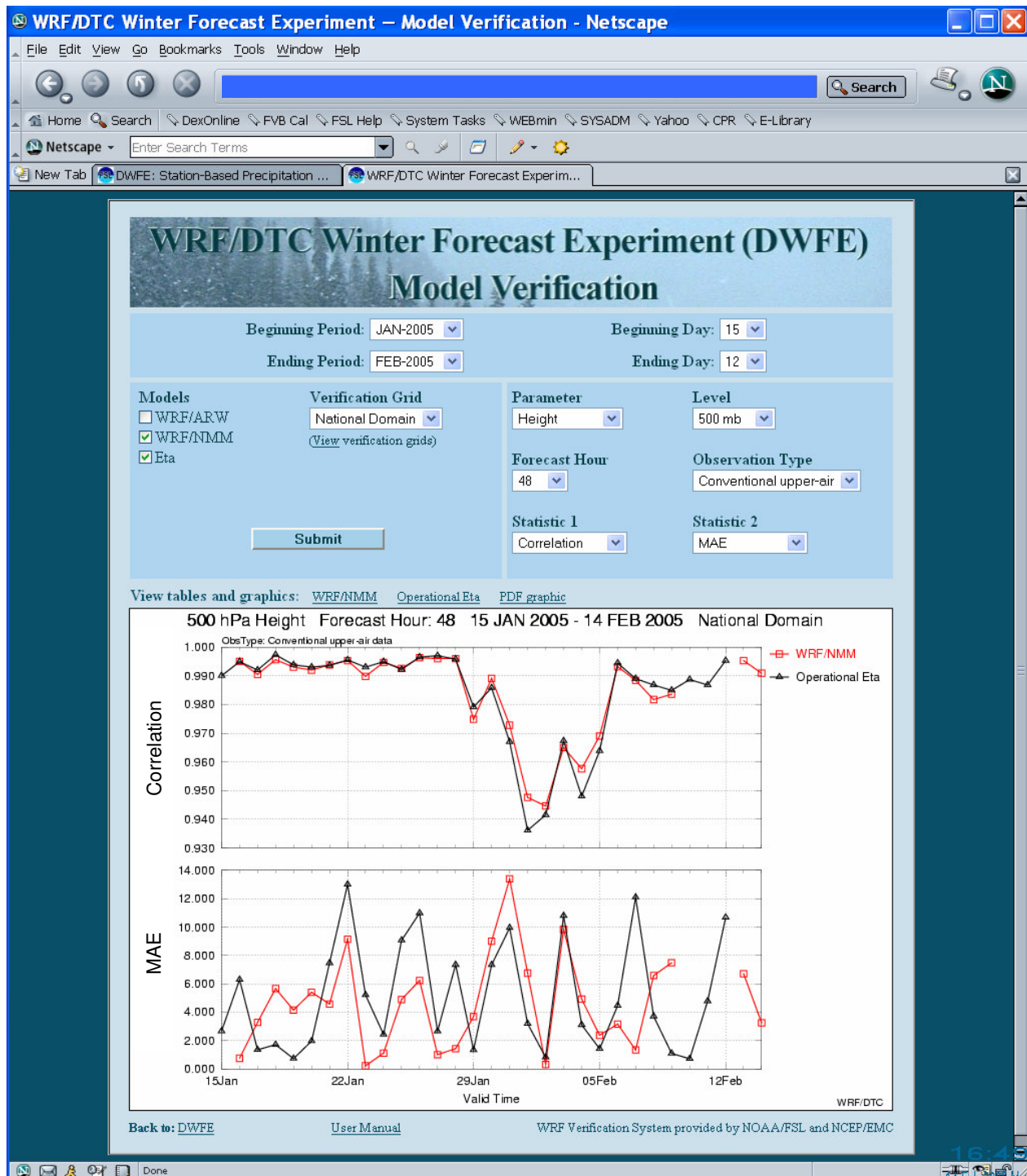
DWFE Verification Tool
Confirms that the WRF NMM is *on par* with the operational eta model.
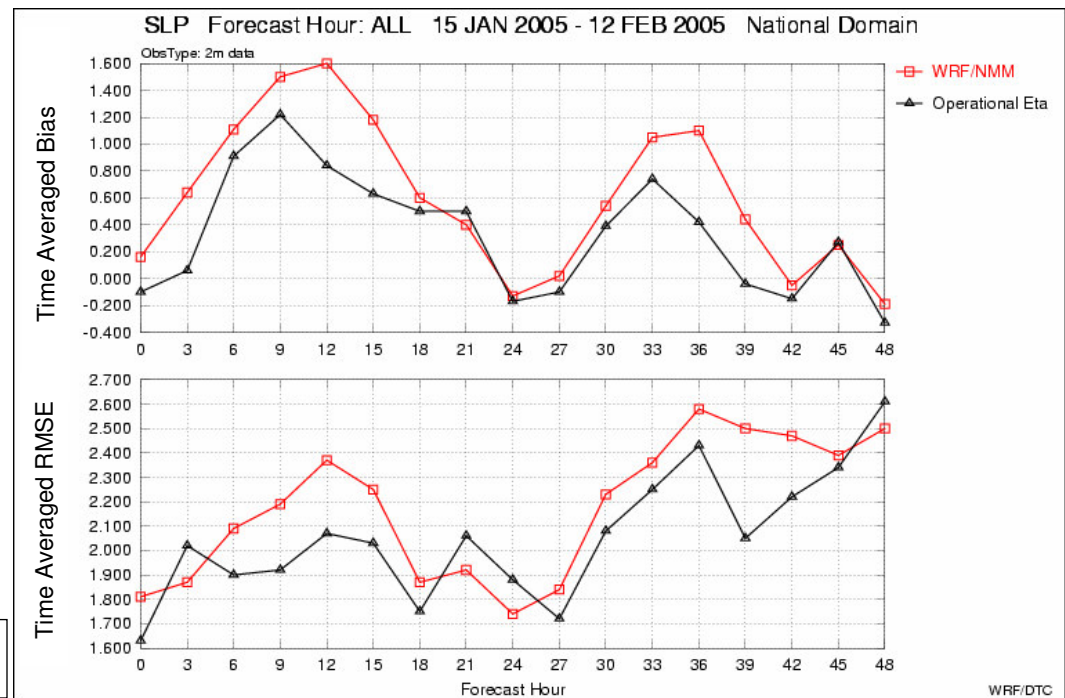
➢ **WRF NMM**

➢ **Eta (operational)**

500 hPa HGHT Timeseries

9

1000 hPa TEMP Timeseries

Diurnal Variation in SLP FCST errors

➢ **WRF NMM**

➢ **Eta (operational)**

Please visit the RTVS DWFE verification page again soon!

Follow the link… precipitation verification tool!

Coming soon: a link to our model verification tool!

Main RTVS Web Page

www-ad.fsl.noaa.gov/fvb/rtvs/

Real Time Verification System for Forecast Quality at FVB/AD/FSL/O...

File   Edit   View   Go   Bookmarks   Tools   Window   Help

Home   Search   DexOnline   FVB Cal   FSL Help   System Tasks   WEBmin   SYSADM   Yahoo

Netscape   Enter Search Terms

New Tab   Real Time Verificati...   WRF/DTC Winter F...   WRF/DTC: DWFE P...   WRF/DTC: DWFE P...

Real Time Verification System
RTVS

Forecast Verification Branch (FVB) is developing a Real-Time Verification System (RTVS) that provides feedback on forecast quality to forecasters, model developers, and managers. FVB also participates in developing and enhancing verification methods.

Operational

FSL RTVS

Experimental

ACARS-RUC

Ceiling and Visibility

Convection

CSI

CWD

DWFE

IHOP

Icing

Precipitation

TMU

Turbulence

DWFE Link

14